

SMITHISTRUMA KEMPFII species nov.

Insecta: Hymenoptera: Formicidae

Robert W. Taylor
Division of Entomology
CSIRO, P.O. Box 1700
Canberra City, A.C.T.
Australia

By

William L. Brown, Jr.
Department of Entomology
Cornell University
Ithaca, New York 14853
U. S. A.

Pilot Register of Zoology
Card No. 35
Issued 25 February 1978.

Holotype worker: TL 2.0, HL 0.51, HW 0.39, ML 0.11, scape L 0.31, eye L 0.06, WL 0.56, hind femur L 0.45, hind tibia L 0.29, hind metatarsus L 0.33 mm; CI 76, MI 22.

Paratype workers (n=6): TL 1.9-2.1, HL 0.47-0.51, HW 0.37-0.39, ML 0.11, scape L 0.30-0.31, eye L 0.06-0.08, WL 0.56-0.59 mm; CI 76-79, MI 22-23.

Habitus and details of external form well shown in the scanning electron micrographs overlaid, except for the following:

(1) Pronotal surface impressed, saucer-like, with a continuous, sharp, raised margin running around the front and sides; humeral angles weakly indicated. Mesonotum also concave (but separated from pronotum by a gently convex region), its dorsolateral margins covered by arms of thick spongiform tissue, and the posterior part smothered under an anterior extension of the propodeal spongiform mass.

(2) The outstanding distinguishing feature of *S. kempfii* is of course the thick spongiform mass spread over the entire propodeum and most of both petiolar and postpetiolar nodes, with heavy fuscatae also gracing the undersides of the petiole and postpetiole for their entire lengths, plus a pad on the anteroventral surface of the first gastric sternite.

(3) The left mandible of a paratype worker, viewed obliquely from a mesoventral position, is shown in the inset below. The dentition includes a long, low, convex basal lamella, followed without a diastema by 12 teeth: 7 coarse teeth (first and third apparently with tips broken off in the specimen shown), 4 fine subapical teeth, and a modest-sized apical tooth—the basic denticitional pattern in the genus *Smithistruma*.



(4) The long, fine, flagelliform hairs of the body, ranging in length from 0.12 to more than 0.30 mm, are arranged fairly regularly and bilaterally; 4 range across posterior cephalic vertex; 3 spaced out along each dorsolateral border of head; 3 along each lateral pronotal margin (including a humeral hair on each side; 2 pairs from tiny anterior piece representing free disc of petiolar node; 3 to 4 pairs from edges of small free disc of postpetiole (which is convex, smooth and shining except for a band of short costulae along its anterior margin); and about 30-36 hairs in rough rows on the gastric dorsum.

(5) Color dull ferruginous yellow; spongiform tissue pale brown.

Queen from type series (1 of 2): TL 2.4, HL 0.53, HW 0.43, ML 0.11, scape L 0.31, eye L 0.16, WL 0.67 mm; CI 81, MI 21. With the usual differences from the worker. Pronotum a flat, narrow, broadly C-shaped platform. Propodeal spongiform appendages more narrowly restricted than in worker (see figs. 5, 6); mesothorax without spongiform masses. Male unknown.

Holotype worker (Australian National Insect Collection, Canberra) from a rain forest litter berlesate, Semengoh Forest Reserve, about 18 km SW of Kuching, Sarawak, 30 June 1968, by R. W. Taylor (Acc. No. 68.778). Paratypes (ANIC and Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA) 4 worker and 2 deslate queen specimens from the same sample as the holotype and a later one (2-3 July 1968, Taylor Acc. No. 68-784) from the type locality.

In the remarkable development of the spongiform appendages on the posterior half of the trunk, and the marginate, discally depressed pronotum, this species is curiously convergent to an undescribed *Strumigenys* species from northern Queensland. The function of these features is unknown. This species is named for our late good friend and colleague, Rev. Fr. Walter W. Kempf, OFM.

Legend for figs. 1 - 6, overlaid: *Smithistruma kempfii*, paratypes; figs. 1, 2, and 3 are dorsal full-face view of head, side view of body, and dorsal view of trunk and waist segments of worker, respectively; figs. 4, 5, 6 are the same three views of a deslate queen. Enlarged 105 times.

A report of research from the Cornell University Agricultural Experiment Station and the Division of Entomology, Commonwealth Scientific and Industrial Research Organization, Commonwealth of Australia, which shared in its support along with the U. S. National Science Foundation through its Grant DEB 75-22427. Edited by W. L. Brown, Jr.